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Shaping Healthcare Possibilities

Value-based care

Investigating the opportunities of cloud in value-based care for Providers

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Introduction to value-based care (VBC) for Providers

Value-based care is a payment model that rewards Healthcare Providers for offering quality care to patients. Its aim is to improve care and health outcomes for populations while also reducing costs. In this model, providers collaborate to ensure coordinated and efficient care for each patient, minimizing any gaps or redundancies in treatment decisions.

Projected growth of VBC

In 2020, CMS revealed that US healthcare spending grew 9.7%, reaching $4.1 trillion – that's $12,530 per person – and accounted for 19.7% of Gross Domestic Product. They also projected that healthcare spending will reach $6.2 trillion by 2028.[1]

Amid this backdrop, the value-based care (VBC) market is on a significant upward trajectory. Value-based care market is expected to reach USD $21.21 million by 2030, growing at a Compound Annual Growth Rate (CAGR) of 19.60%.[2] This growth is indicative of a fundamental shift in healthcare provision and payment models, emphasizing the importance of quality and outcomes over the volume of services provided.

Healthcare Providers that offer value-based care are compensated based on several factors, including the patient's experience, cost, efficiency, quality, and health outcome. This model places a renewed focus on promoting speedy recovery and preventing chronic illnesses so that patients can achieve better health outcomes at a lower cost. Value-based healthcare services help in lowering society's overall healthcare spending. The shift towards value-based care comes amid increasing pressure on Providers to enhance services and reduce costs, amidst fierce competition.

The demand for value-based healthcare services is on the rise, driven by CMS payment models like accountable care organizations, bundled payments, pay-for-performance, and patient-centered medical homes. These models incentivize Providers to use evidence-based medicine, engage patients, upgrade health IT infrastructure, and leverage data analytics. Additionally, the rising prevalence of chronic diseases further accelerates the demand for value-based healthcare services, with wireless and cloud technologies increasing healthcare IT adoption rates.

Current state of VBC for Providers

The value-based care models are widely accepted in the healthcare industry. In these models, CMS pays for health services and items based on quality measures rather than the volume of services or items delivered.

Unlike the FFS model, value-based care is driven by data because Providers are required to report on specific quality measures that suggest a patient's health is improving. Value-based compensation is determined using a variety of quality indicators and population health. Hospital readmissions, adverse events, population health, patient involvement, etc. can be tracked and reported by Providers. The new payment methods encourage the use of evidence-based medicine, patient engagement, improved health IT, and data analytics.

The Centers for Medicare and Medicaid Services (CMS) started with five core value-based programs and now have more than 40 programs. CMS has successfully tied 90% of payments to value, and 40% of all payments flow through alternative payment models (APMs). A few examples are the End-Stage Renal Disease Quality Incentive Program (ESRD QIP), Hospital Value-Based Purchasing (VBP) Program, Hospital Readmission Reduction Program (HRRP), etc.

Critical role of data interoperability in VBC

Value-based care models prioritize quality and outcomes over quantity of services, emphasizing preventive measures, patient-centric care, and collaboration among Providers. This shift towards value-based care requires accessing existing data, ensuring quality, and promoting interoperability. Clinical data access in the US faces challenges due to technological limitations, fragmented systems, and data privacy concerns, hindering seamless patient information flow across healthcare entities. Also, it has been observed, interoperability issues in electronic health platforms and Providers hinder consistent clinical stories, requiring patients to bridge gaps and consolidate disparate data for a comprehensive understanding.

Various stakeholders play a vital role in achieving interoperability, including Healthcare Providers, Payers, pharmacies, laboratories, and patients. These entities contribute data from various sources, such as electronic health records (EHRs), medical devices, wearables, integration of provider systems with other medical software used by different teams (integrating EHR with a Healthcare CRM to streamline the flow of patient information captured while booking an appointment) and patient-reported information, which must be harmonized for effective interoperability.

Patients often share their medical history for emergency care, out-of-network providers, or health plan transitions, despite not fully understanding medical complexities, requiring them to ensure a cohesive healthcare picture.

The Centers for Medicare and Medicaid Services (CMS) has established the Interoperability and Patient Access final rule to prioritize patients. This regulation allows patients to access their electronic medical records through API connections, facilitating communication with family members, Providers, and acute care facilities. Providers and payers are mandated to use the Fast Healthcare Interoperability Resource (FHIR) standard for enhanced communication.

Challenges of implementing VBC models

The shift from traditional fee-for-service models to value-based care (VBC) presents a unique set of challenges:

Navigating data management in VBC implementation

Data management is crucial for value-based care implementation, involving structured and unstructured data from sources like EHRs, claims, and clinical trials. Healthcare data is largely unstructured, (up to 80% data is unstructured). This data, including images, audio, video, notes, charts, and faxes, often needs more digital analysis and value. Healthcare organizations often fail to meet data standards, such as HL7, X12 EDI, FHIR, NCPDP, CCLF, and CCDA. External data utilization is limited, which confines access to real-time data and causes delays in the revenue cycle. Data redundancy is also a concern, with duplicate data errors common in electronic health records. Inconsistencies in data collection and storage can lead to inaccurate patient population views and affect treatment plans.

Real-time data access for enhanced healthcare delivery

Organizations adopting VBC models face challenges in managing diverse healthcare information, ensuring real-time access, and preventing delays or denials due to financial inconsistencies. Duplicate entries in electronic health records (EHRs) pose significant challenges for clinicians who need to accurately diagnose patients based on erroneous medical histories.

Leveraging artificial intelligence (AI) and machine learning (ML) in value-based care

Healthcare systems are shifting from fee-for-service to value-based care models, due to increasing focus on improving patient outcomes which requires managing complex data, enhancing operational efficiency, reducing errors, and lowering costs. AI and ML algorithms can enhance decision-making, streamline operations, and personalize care.

By digitizing data, reducing errors, automating tasks, and facilitating bidirectional integration, AI and ML can improve care delivery and reduce claims denials. AI technologies like natural language processing and computer vision convert unstructured information into structured data, improving care delivery and reducing claims denials.

Example 1

Forecasting and managing patient flow to streamline hospital operations

AI can optimize hospital resources by providing predictive insights into equipment, beds, and staff utilization. By extracting patterns from real-time and historical data, AI can forecast patient flow, enabling healthcare providers to efficiently manage care transition from admission to discharge, ensuring every patient receives the right care at the right time.[6]

Example 2

Detecting early signs of patient deterioration in the general ward

By automatically monitoring vital signs and calculating early warning scores that signal possible patient deterioration, AI-enabled tools can help nurses and care teams identify early signs of events such as respiratory failure or cardiac arrest, allowing them to respond rapidly.

In doing so, one hospital managed to reduce serious adverse events in the general ward by 35% and cardiac arrests by more than 86%.[6]

Cloud-based data infrastructure needed for VBC

A robust IT infrastructure is crucial for value-based care models, as traditional systems struggle to manage large healthcare data volumes, causing inefficiencies and hindering patient outcomes. A robust cloud-based infrastructure approach offers scalability, cost-effectiveness, enhanced security measures, and, most importantly – seamless access to accurate patient records across different health networks.

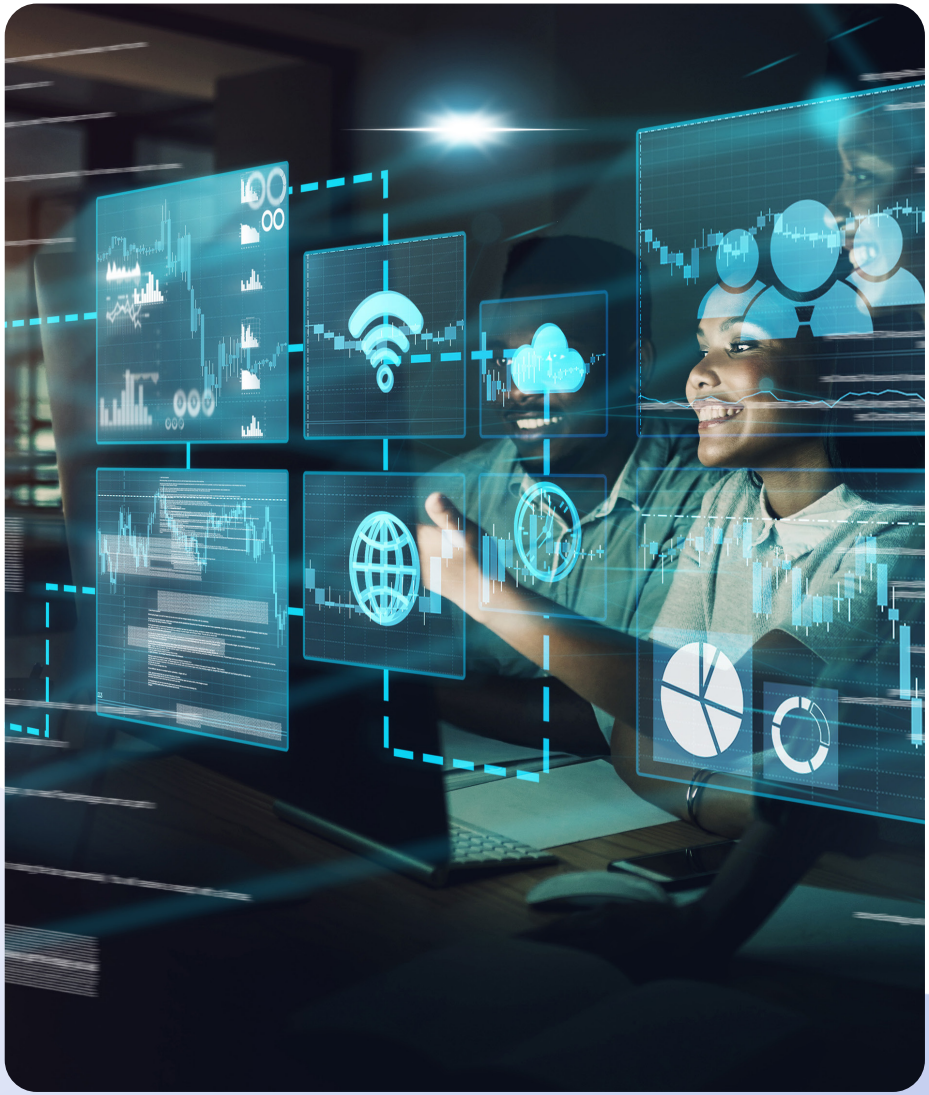
Necessity of scalability in healthcare data management

In value-based care models, healthcare providers must manage a huge amount of data from different sources like EHRs, claims databases, and wearables. Handling this volume requires an adaptable storage capacity that can expand or contract based on demand – something a cloud-based system offers.

Beyond just storage flexibility, though, these infrastructures come equipped with advanced analytics tools that aid clinicians in making more informed decisions about treatment plans. If implemented correctly according to certain specific measures outlined in previously established guidelines issued periodically throughout the year, these infrastructures will substantially improve overall quality scores within their respective organizations.

Cloud computing enables real-time data sharing among healthcare providers. This real-time sharing ensures that healthcare professionals have the most current and accurate data, supporting timely decision-making.

Leverage APIs to expose patient records using DaaS (Data as a Service) and in the platform infrastructure through a Platform as a Service (PaaS)/ Software as a Service (SaaS model, running on a modern application stack offering micro-services.



AWS can leverage the need for VBC

AWS leading cloud platform enables healthcare organizations to easily deploy analytics and machine learning tools to derive insights from their health data. With AWS' purpose-built AI services for vision, transcription, natural language processing, and document understanding as well as the most comprehensive machine learning (ML) platform, organizations can use analytics and ML to address a range of health industry issues—from improving patient outcomes to reducing physician burnout. AWS and AWS partners help healthcare organizations deploy analytics tools to improve patient care quality, report on process and outcome metrics while complying with regulations.

AWS Data Exchange (ADX) is a service within AWS Marketplace that allows AWS customers to search for, subscribe to, and use third party data in the cloud. As a digital marketplace for data, the ADX catalog contains data from suppliers in claims, EHR, clinical/genomics, social determinants of health, patient-reported outcomes, genomic reference data, curated healthcare literature, and data from data aggregators. With a public catalog of 3500+ data products, ADX supports the entire enterprise's needs for data in healthcare and life sciences.

In tandem with this digital transformation focus, healthcare data volume is growing tremendously. Global spending on healthcare data storage grew from $4.88 billion in 2022 to $5.7 billion in 2023, with expected growth to exceed $10 billion by 2027.[11]

Conclusion

The effectiveness of VBC heavily depends on the ability of healthcare organizations to successfully digitize data. By ensuring easy access to accurate, comprehensive and up-to-date longitudinal patient records, they can deliver better patient outcomes at lower costs. Healthcare companies are finally able to overcome the systemic and technical barriers thanks to high-tech innovations and strategic partnerships. Cloud platforms like AWS can now leverage high-speed, cloud-based, big data analytics, enabling healthcare providers to analyze patient data to transformative effect.

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